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Examination Requested : Requested

(54) MULTIFUNCTIONAL UNIFICATION-TYPE MAIN BOARD FOR SET-TOP BOX

Abstract

Machine Translation | Human Translation

1 The present invention relates to the mainboard mounted on the set-top box, particularly, to the multifunction union type main board for the set top box which with canning receive the digital broadcasting selectively conveniently uses the function in which a user wants not only the internet using, through the general TV the apparatus in which the digital broadcast reception is possible is installed in the equipment of all sorts and the general TV in which the internet using is available in the general TV in a mainboard.

Machine Translation | Human Translation

PURPOSE: A multifunction integration type mainboard for a set-top box is provided to install a device for receiving digital broadcasting and a device for searching the internet in one mainboard for a set-top box. Therefore, users do not need to install set-top boxes with different functions separately and installation cost is reduced.

CONSTITUTION: A processor installing part(10) is for installing a CPU. A north bridge part(20) controls an AGP(Accelerating Graphic support port) and a memory. A main memory part(30) executes an execution program for driving a system. A memory controlling part(40) includes the memory and controls the memory together with the north bridge(20). A south bridge part(25) controls input/output devices such as hard disk drive and USB, and manages various input/output functions. An input/output part(50) is connected to the south bridge part(25) by BUS. Various

input/output devices are connected to the input/output part(50). A graphic card part(60) is connected between the north bridge part(20) and the south bridge part(25) by BUS, and controls output of image and the output image. An audio card part(70) controls output of sound and the output sound. A LAN card part(80) transmits/receives internet transmission signal. A digital tuner part(90) receives broadcasting signal of digital mode. Therefore, a user can watch digital broadcasting in a TV of analog mode. An auxiliary memory part(100) performs interface role. Auxiliary memories are connected to the auxiliary memory part(100).

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Representative Drawing(s)

Fig. 3

Keyword(s)

The set top box, the digital broadcasting, and a mainboard.

Descritption

Brief explanation of the drawing

2 Fig. 1 is an outline configurated block diagram of *** mainboard for the conventional set top box

3 Fig. 2 is an outline configurated block diagram of the union type main board for the conventional set top box

4 Fig. 3 is a configuration diagram of the multifunction union type main board for the set top box which is the present invention

5 Fig. 4 is the operational flow chart in the internet using in the present invention.

6 Fig. 5 is the operational flow chart in the digital broadcast reception in the present invention.

7 Fig. 6 is a total operation flow drawing of the present invention

8 ***The description of reference numerals of the main elements in drawings***

9 10: processor device part (10) 20: the north bridge part.

10 25: the south bridge part 30: main memory part.

11 40: memory control unit part 50: part of input and output apparatus.

12 60: graphic card part 80: LAN card part.

13 90: digital tuner part 100: auxiliary storage device.

- Details of the Invention
- Purpose of the Invention

The Technical Field to which the Invention Belongs and the Prior Art in that Filed

14 The present invention relates to the mainboard mounted on the set-top box, particularly, to the multifunction union type main board for the set top box which with canning receive the digital broadcasting selectively conveniently uses the function in which a user wants not only the internet using, through the general TV the apparatus in which the digital broadcast reception is possible is installed in the equipment of all sorts and the general TV in which the internet using is available in the general TV in mainboard.

15 Generally, in thing and general TV having a function as the internet user interface intermediary connecting according to the use to the general TV and the set top box uses an internet, the kind is classified according to each use used as the use for receiving the digital broadcasting including a thing etc.

16 There can be the burden according to the purchasing charge of the etc. which separately has to buy the used set top box it is inconvenient as each use at the same time, a user tries to decide the internet using through the general TV and digital broadcast reception on this conventional set top box.

17 It confronts to have thing and digital broadcast reception function having the internet using function it classifies roughly with the present invention among the conventional set top box and it illustrates as the expenditure.

18 Fig. 1 is an outline configurated block diagram of *** mainboard for the conventional internet settop box. It shows to be comprised of the slot -1 type, or the processor device part (10a) formed with the PGA 370 type, the north bridge (North Bridge) part (20a) having the function of controlling the central processing unit (CPU) / accelerated graphics port (AGP) / memory, the memory control unit part (40a) going hand in hand with the main memory part (30a) executing the execution program for runing a system and goes hand in hand with the north bridge part (20a) and controls the memory, the south bridge (South Bridge) part (25a) having the function of managing all kinds of the input-output functions with the function of controlling the I/O unit including the hard disk drive, the universal serial bus (USB) etc, part of input and output apparatus (50a), the graphic card part (60a) controlling the image who is connected bus between the north bridge part (20a) and south bridge part (25a) the peripheral component interconnect (PCI) and is outputted, the audio card part (70a) controlling the outputted acoustic, and the LAN (LAN) card part (80a) etc. for sending and receiving the internet signal. Part of input and output apparatus (50a) are connected to the south bridge part (25a) with the ISA (ISA) autobus (BUS) and connect all kinds of the I/O units including a mouse, a keyboard, a monitor etc.

20 Since the compatability which similarly *** mainboard for the above-described set top box was nearly comprised of the mainboard of the general fiche (PC) and it comprised each component with a discrete although it was excellent as to the processing speed and in efficiency and it had to mount between each component reciprocity according to a kind could become a problem, *** mainboard for the above-described set top box was troublesome the crux according to that was generated in manufacture. And the manufacturing cost rose since separately to manufacturing each component. The problem of the purchase cost up of a user was generated according to that.

21 Fig. 2 is the outline configurated block diagram of the union type main board for the conventional set top box. It shows to be comprised of the function of the apparatus for controlling audio controlling the outputted acoustic is the integrated chip set device (20b) performed, and part of input and output apparatus (50b) while being made of the function of the apparatus for controlling audio controlling the outputted acoustic is the integrated chip set device (20b) performed, and part of input and output apparatus (50b). The north bridge and the hard disk drive having the processor device part (10b), at the same time, performs the function of the video card part and function of the central processing unit and the function of controlling the central processing unit (CPU) / accelerated graphics port (AGP) / memory. Part of input and output apparatus (50b) are connected bus in the integrated chip set device (20b) the ISA and connect all kinds of the I/O units.

23 The union type main board for the above-described set top box became with - board (On - Board). Therefore, all components came the speed of being outputted since the central processing unit, which was the core component that is, a processor served both the control of a graphic although the purchasing cost of the user according to the cheap manufacturing cost was decreased of an image was lowered. The problem of the etc. in which a screen was cut was generated in a drive including the moving picture etc.

24 Moreover, since the north bridge and the south bridge which was the chip set playing the role of controlling so that each peripherals befittingly operate being integrated into one chip set and controlling each peripheral, on the whole, it became a problem in the error generation. The problem of a stability was generated.

25 And the element managing the different kinds function was integrated and it ran. Therefore, the whole processing speed of a system became slow and the desire of a user was unable to be satisfied. In addition, a problem was generated in a stability on the device driving which was caused by since it induced the generation of heat and the temperature of the total tool rose.

26 And before it illustrates for the conventional instrument having the digital broadcast reception function. It briefly illustrates for the digital broadcasting

27 The signaling system of TV altogether consecutively,sequentially,serially processed the propagation signal as the analog method according to the flow of the time and the picture quality and tone quality were not clear and the conventional signaling system could not look about the restricted channel to be classified into the analog method and digital method.

28 Thus, the digit signaling is the mode which changes the analog signal into the digital signal and controlled with the computer circuit in the half. The mode is not interfered. And the generated noise is removed and the various information and program can be variously selected. It is the mode creating the various image including the PIP (the screen in the Picture In Picture screen) etc. again.

29 In the conventional analog-broadcasting-format due to the sudden power generation of the reason described in the above, and information media, it is gradually transformed to the digital broadcasting method.

30 But the broadcast signal transmitted to the digital method could not be received to the existing TV receiving the broadcast signal of the general analog method. Therefore, it was necessary to have TV for the digital broadcast reception in order to receive the broadcast signal of the digital method. It was the high price and it was a burden to the general user.

31 And there is a problem that the set top box converting the broadcast signal of the digital method which has been being transmitted into the broadcast signal of the analog method and watches the digital broadcasting in the conventional general analog broadcasting receiving TV is introduced and it is used in a part. But a function is limited to the digital broadcast reception and this smoothly cannot perform the additional function including the bothway communication, which is the feature in an inefficient, the digital broadcast reception the information use etc. At the same time, is transmitted with an image.

Technical challenges of the Invention

32 Therefore, there can be the purpose the purchasing cost of a user is reduced and the performance degradation is prevented in the drive of each function, and a user more conveniently searches the information which has been being transmitted in the digital broadcast reception like an image through the I/O unit as the saving which in order that the present invention solves the problem of the above-described conventional device, it devises, and it installs the apparatus, for receiving the digital broadcasting and the apparatus for searching an internet in one mainboard for the set top box, and it does not give the burden of the cost to the user in which a user separately has to set up the set top box having the different function in the when necessary of the internet connection function through the conventional general TV and digital broadcast reception function in an installation, and is troublesome it attachably/detachably comprises with a processor and memory etc. is the core component so that the exchange and upgrade be possible according to a user, and separately installs parts which have each function so that it integrates parts which are in charge of the part, the output image and acoustic including the chip set etc. control each peripheral and the performance degradation phenomenon be generated, and comes to the mainboard for the set top box. Of the manufacturing cost it turns with board.

▸ Structure & Operation of the Invention

37 It circumstantially illustrates for the multifunction union type main board for the set top box which is below, and the present invention to achieve the above object worked out through the drawing.

38 Fig. 3 is a configuration diagram of the multifunction union type main board for the set top box which is the present invention. It shows to be comprised of the memory control unit part (40) having the function of controlling the memory, the south bridge (South Bridge) part (25) having the function of managing all kinds of the input-output functions with the function of controlling the I/O unit including the hard disk drive, the universal serial bus (USB) etc, part of input and output apparatus (50), the graphic card part (60) having the function of being connected bus between the north bridge part (20) and south bridge part (25) and controlling an output and the outputted image of an image, the audio card part (70) having the function of controlling an output and the outputted acoustic of an acoustic, the LAN (LAN) card part (80) for sending and receiving the internet protocol, the digital tuner part (90) for receiving the broadcast signal of the digital method and watching the digital broadcasting in TV of the analog method, and the auxiliary storage device (100) and go hand in hand with the north bridge part (20) and be comprised of the memory control unit part (40) having the function of controlling the memory, the south bridge (South Bridge) part (25) having the function of managing all kinds of the input-output functions with the function of controlling the I/O unit including the hard disk drive, the universal serial bus (USB) etc, part of input and output apparatus (50), the graphic card part (60) having the function of being connected bus between the north bridge part (20) and south bridge part (25) and controlling an output and the outputted image of an image, the audio card part (70) having the function of controlling an output and the outputted acoustic of an acoustic, the LAN (LAN) card part (80) for sending and receiving the internet protocol, the digital tuner part (90) for receiving the broadcast signal of the digital method and watching the digital broadcasting in TV of the analog method, and the auxiliary storage device (100). Part of input and output apparatus (50) the autobus (BUS) are connected to the south bridge part (25) and which connect all kinds of the I/O units and used. The auxiliary storage device (100) acts as intermediate an interface in order to connect and uses the secondary storage etc.

40 Provided is the configuration of the multifunction union type main board for the above-described set top box, in which in a processor and the memory of being the core component, it comprised so that a removable be possible and the specification choice according to the taste of a user and upgrade were possible; and it is change with the on-board (On - Board) and is the mode which builds on mainboard an element including the north bridge part (20) and south bridge part (25) of ***, the audio card part (70) and graphic card part (60), the LAN card part (80), part of input and output apparatus (50) and digital tuner part (90) etc. molds.

42 Moreover, the element of the auxiliary storage device (100) is characterized that the flash card and hard disk are selectively used.

43 As a kind of the ROM (ROM: Read Only Memory) in which a reading and write are possible, the above-described flash card adds the electrical surge and it uses the register and the mode eliminated. The feature in which the recorded content is not volatilized even if the electric power supply is broken off has as to the or more, which does not give the impact which is an electrical so that it eliminate the stored content and this flash card record the new content. Therefore, if it installs the operating program (OS: Operating System) for runing a system after the register, it is the memory of the mistake of a user or the nonvolatility which has no connection with existence and nonexistence of the electric power supply although the supply of the surprising power due to the blackout lamp is blocked. Therefore, the inside error is not generated in the system restart.

44 The hard disk is selected of the element of the above-described secondary storage and it uses. If it is the case, as it is known in the normal computer and the hard disk is widely used. It can input and can output with data storage of the large amount in which a user wants.

45 Referring to the figure, it circumstantially illustrates for the action of the multifunction union type main board for the set top box which is below, and the present invention.

46 In the present invention,
Fig. 4 is the operational flow chart in the internet using. In the present invention,

Fig. 5 is the operational flow chart in the digital broadcast reception.
Fig. 6 is a total operation flow drawing of the present invention.

47 If it illustrates for an operation and principles of an instrument through
figs. 4 and
figs. 4 when a user uses an internet, if the power is permitted in the set top box, having the present invention built-in and the general TV connected to the set top box, this is recognized clearly in the main memory part (30) and the execution program stored in the auxiliary storage device (100) after the system check in advance is called to come.

48 And then, the information stored in the auxiliary storage device (100) in advance is outputted to the screen of the general TV. If the internet access program stored in the auxiliary storage device (100) through the input unit of part of input and output apparatus (50) including a keyboard or a mouse etc. in advance is performed so that a user use an internet, a user is provided with the internet signal transmitted from the terminal office of the external internet service provider (internet Service Provider: internet service provider) in the LAN card part (80). While this being converted in the system inside after the predetermined calculation and connecting with the site which a user defines in advance to the internet access program of the general TV screen connected with the set top box, thereafter a user searches the site desiring through the input unit. The program is expired if a search finishes.

49 If it explains an operation and principles of an instrument when a user tries to receive the digital broadcasting through
figs. 4 and
figs. 4 the broadcast signal of the transmitted digital method is the selection in which a user receives the digital broadcasting like the internet using time after the power on supplied from a lower-part, and an outside to the digital tuner part (90).

50 In this way, an audition is impossible to the general TV which becomes standardized in order to the broadcast signal of the digital method supplied to the digital tuner part (90) signal-process the broadcast signal of the analog method after a reception. Therefore, after passing through the predetermined operation process for converting the digital broadcasting signal into the analog broadcasting signal, the digital broadcasting is outputted in the TV screen for the broadcasting signal reception of the analog method.

51 If it illustrates for the whole operation through
figs. 6 and
figs. 6 if a user permits the power in the set top box mounting the present invention and the general TV connected to the set top box, the selection menu is outputted with the information stored in the auxiliary storage device (100) in advance in a screen.

53 And then, a user tries to the internet search. If it is the case, as described above, a connection and internet search are done in the internet using. And a user tries to watch the digital broadcasting. If it is the case, the digital broadcasting is watched in the digital broadcast reception with the principles as described above in TV of the general analog method.

55 And in case the internet search and digital broadcast reception are not done and a user desires the general analog broadcasting audition, a deselect a lower-part, and the general analog broadcasting can be watched.

56 Moreover, it is characterized that while the digital broadcasting is received, the concurrent of the internet search is possible while the internet access program is performed in case of to going side by side with the internet search and watching the digital broadcasting.

▸ Effects of the Invention

57 As illustrated in the above, the present invention integrated the apparatus for having apparatus and digital broadcast reception function having internet connection function to one mainboard for the set top box and it installed, since by conveniently using an internet through the general TV, it can not give a burden to the purchasing charge of a user and it was instead of easy with computer and the cost difficult and many was reqired a user conveniently can use an internet, it could contribute to the computerization of the users. It watched the digital broadcasting having among a part test broadcasting to

the general TV and it was possible for the city hall without the purchase of the overhead digital television. And a user easily used the information which had been being additionally transmitted of moreover, the digital broadcasting besides the video information. And even when receiving moreover, the digital broadcasting, it is possible and it has to a user, it efficiently uses information the internet using.

59 And a selection and the upgrade in which a user wants of a specification are possible and it can cancel the dissatisfaction of the user according to the performance degradation. And it is change with onboard and the other elements brings the cost-cutting effect of the cost to manufacture. It is the invention which the drunken fellow makes the best use only the advantage of the mainboard for the conventional set top box.

Scope of Claims

Claim[1] :

60 The multifunction union type main board for the set top box, wherein: it is comprised of the memory control unit part (40) having the function of controlling the memory, the south bridge (South Bridge) part (25) having the function of managing all kinds of the input-output functions with the function of controlling the I/O unit including the hard disk drive, the universal serial bus (USB) etc, part of input and output apparatus (50), the graphic card part (60) having the function of being connected bus between the north bridge part (20) and south bridge part (25) and controlling an output and the outputted image of an image, the audio card part (70) having the function of controlling an output and the outputted acoustic of an acoustic, the LAN (LAN) card part (80) for sending and receiving the internet protocol, the digital tuner part (90) for receiving the broadcast signal of the digital method and watching the digital broadcasting in TV of the analog method, and the auxiliary storage device (100) and it goes hand in hand with the north bridge part (20) and it is comprised of the memory control unit part (40) having the function of controlling the memory, the south bridge (South Bridge) part (25) having the function of managing all kinds of the input-output functions with the function of controlling the I/O unit including the hard disk drive, the universal serial bus (USB) etc, part of input and output apparatus (50), the graphic card part (60) having the function of being connected bus between the north bridge part (20) and south bridge part (25) and controlling an output and the outputted image of an image, the audio card part (70) having the function of controlling an output and the outputted acoustic of an acoustic, the LAN (LAN) card part (80) for sending and receiving the internet protocol, the digital tuner part (90) for receiving the broadcast signal of the digital method and watching the digital broadcasting in TV of the analog method, and the auxiliary storage device (100); part of input and output apparatus (50) the autobus (BUS) are connected to the south bridge part (25) and which connect all kinds of the I/O units and used; and the auxiliary storage device (100) acts as intermediate an interface in order to connect and uses the secondary storage etc.

Claim[2] :

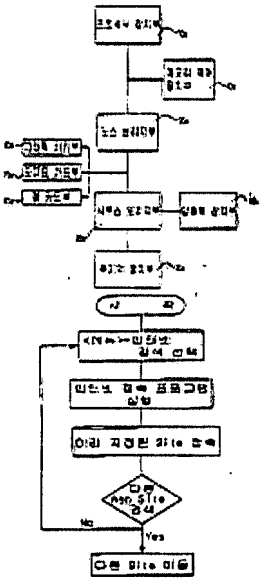
61 The multifunction union type main board for the set top box of a configuration of the present invention of claim 1, wherein in a processor and the memory of being the core component, it comprised so that a removable be possible and the specification choice according to the taste of a user and upgrade were possible; and it is change with the on-board (On - Board) and is the mode which builds on a mainboard an element including the north bridge part (20) and south bridge part (25) of ***, the audio card part (70) and graphic card part (60), the LAN card part (80), part of input and output apparatus (50) and digital tuner part (90) etc. molds.

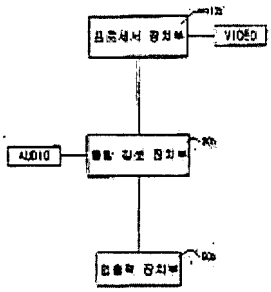
Claim[3] :

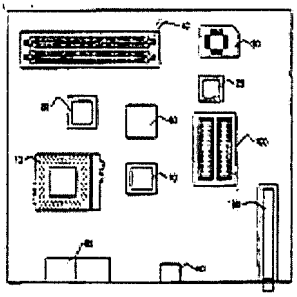
63 The multifunction union type main board for the set top box, wherein the element of the auxiliary storage device (100) among an element of the present invention of claim 1 selectively uses the flash card and hard disk.

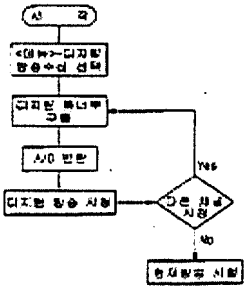
Claim[4] :

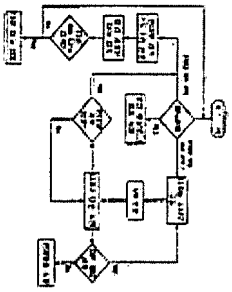
65 The multifunction union type main board for the set top box of claim 1, wherein the digital broadcasting is received; and the concurrent of the internet search is possible while the internet access program is performed in case of to going side by side with the internet search and watching the digital broadcasting.

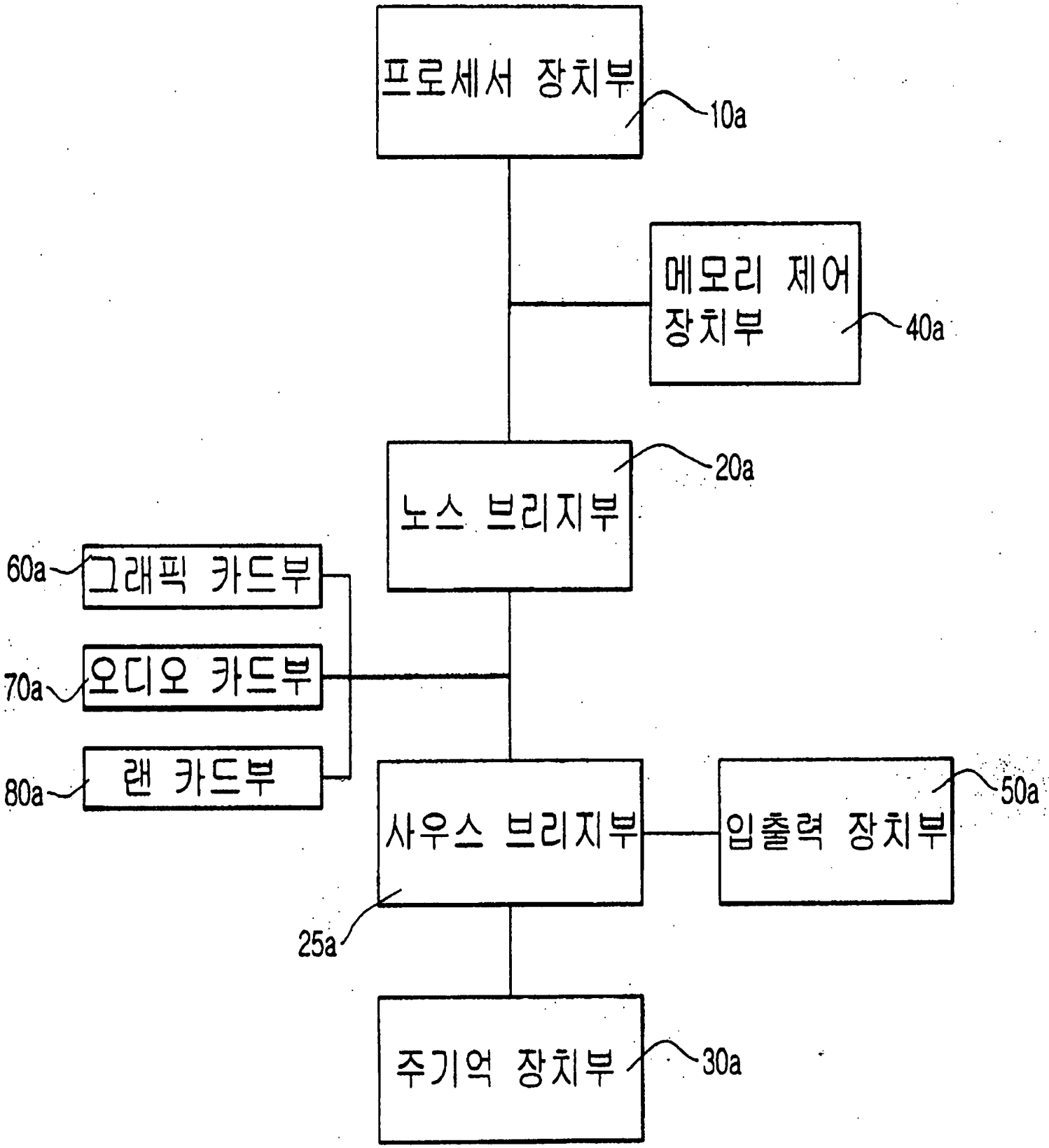


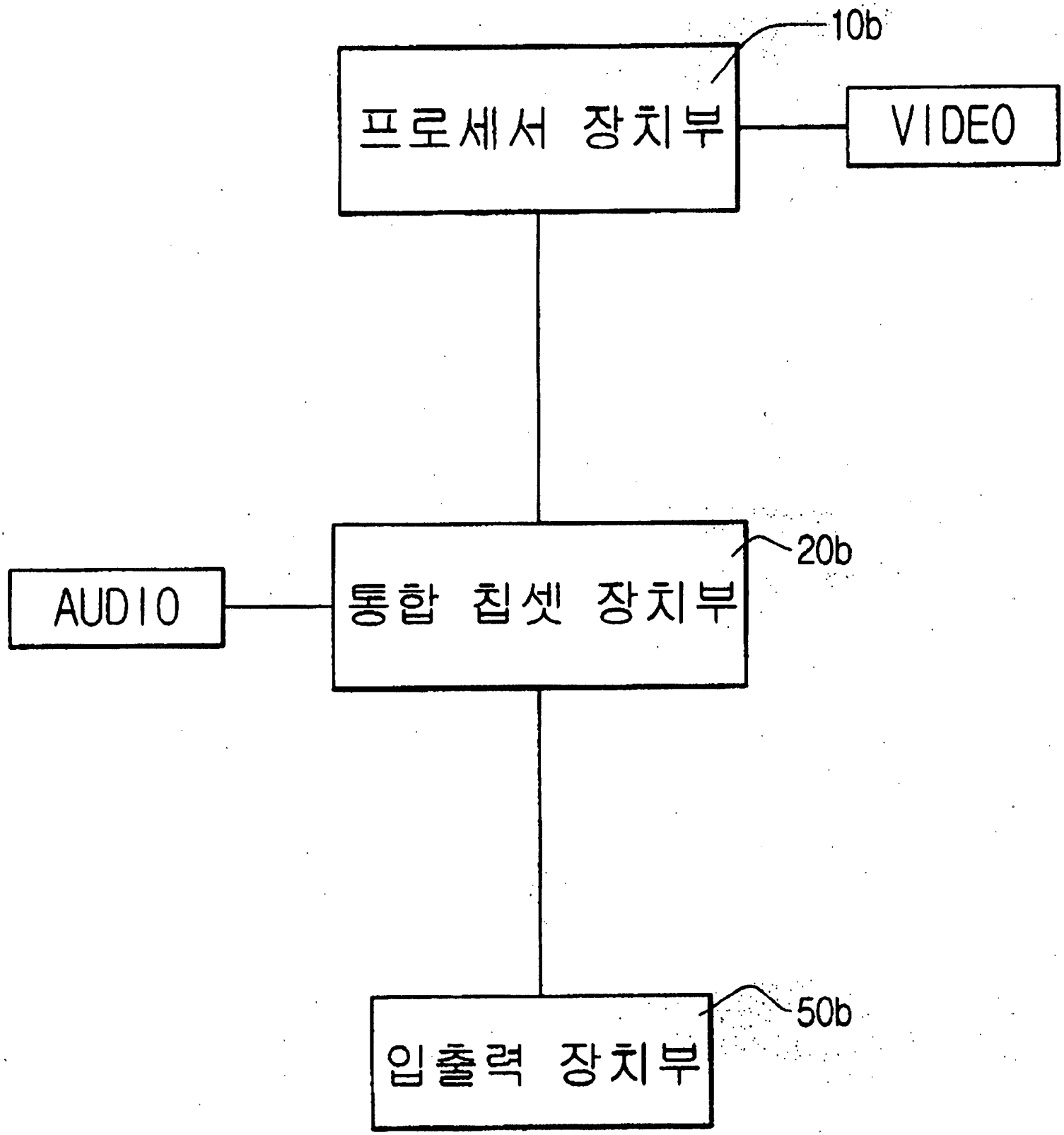

VIDEO
AUDIO

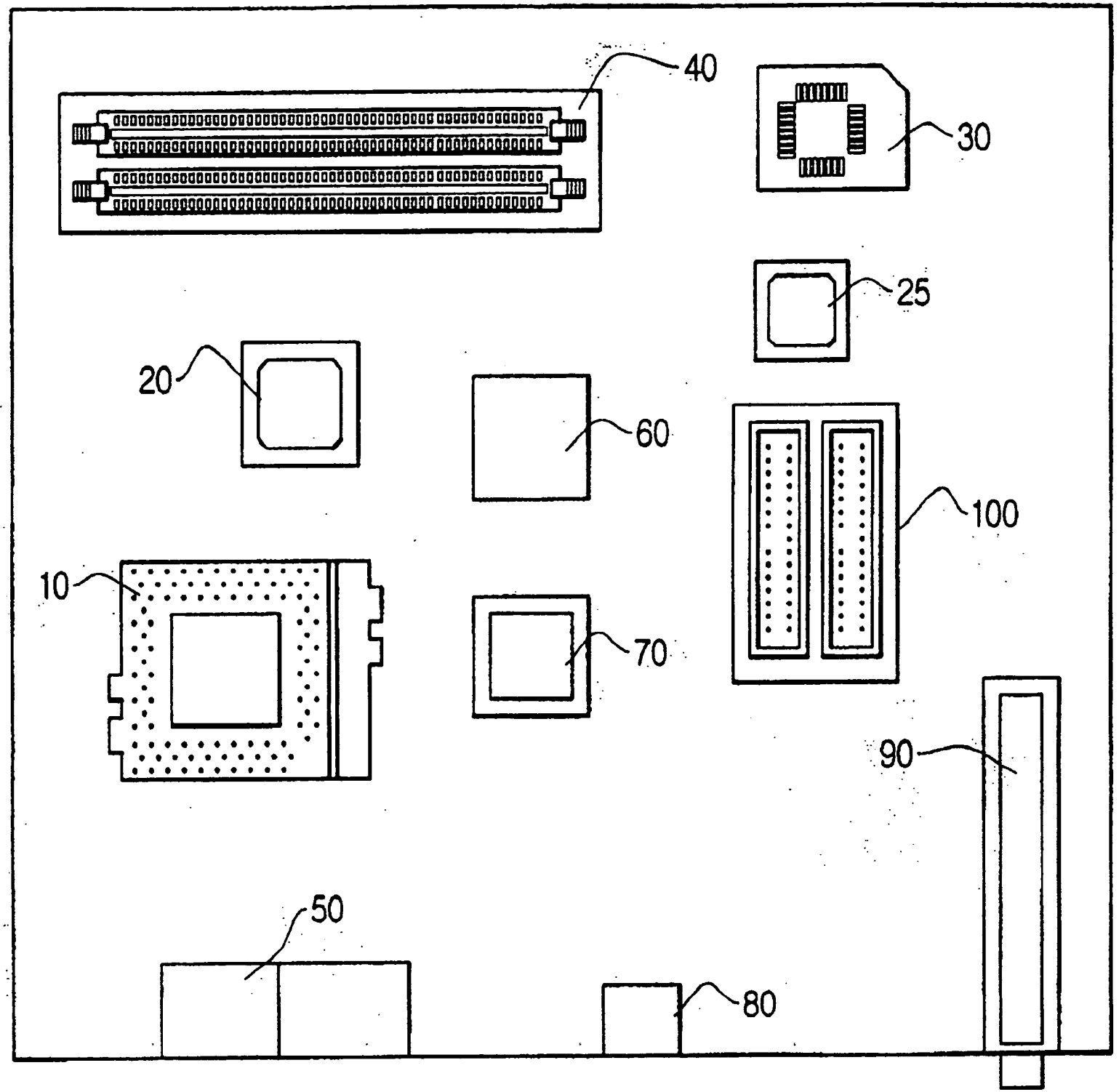


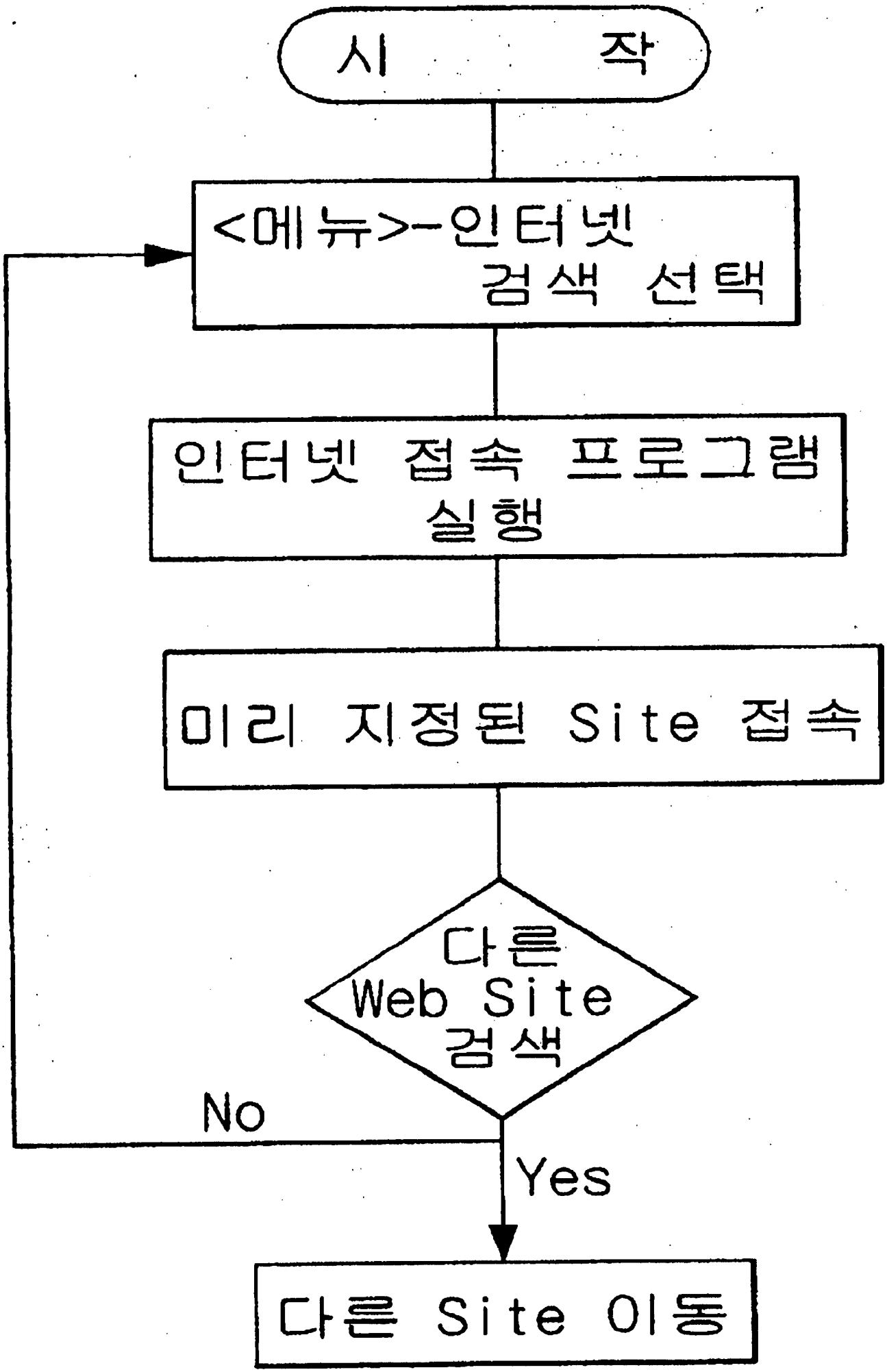


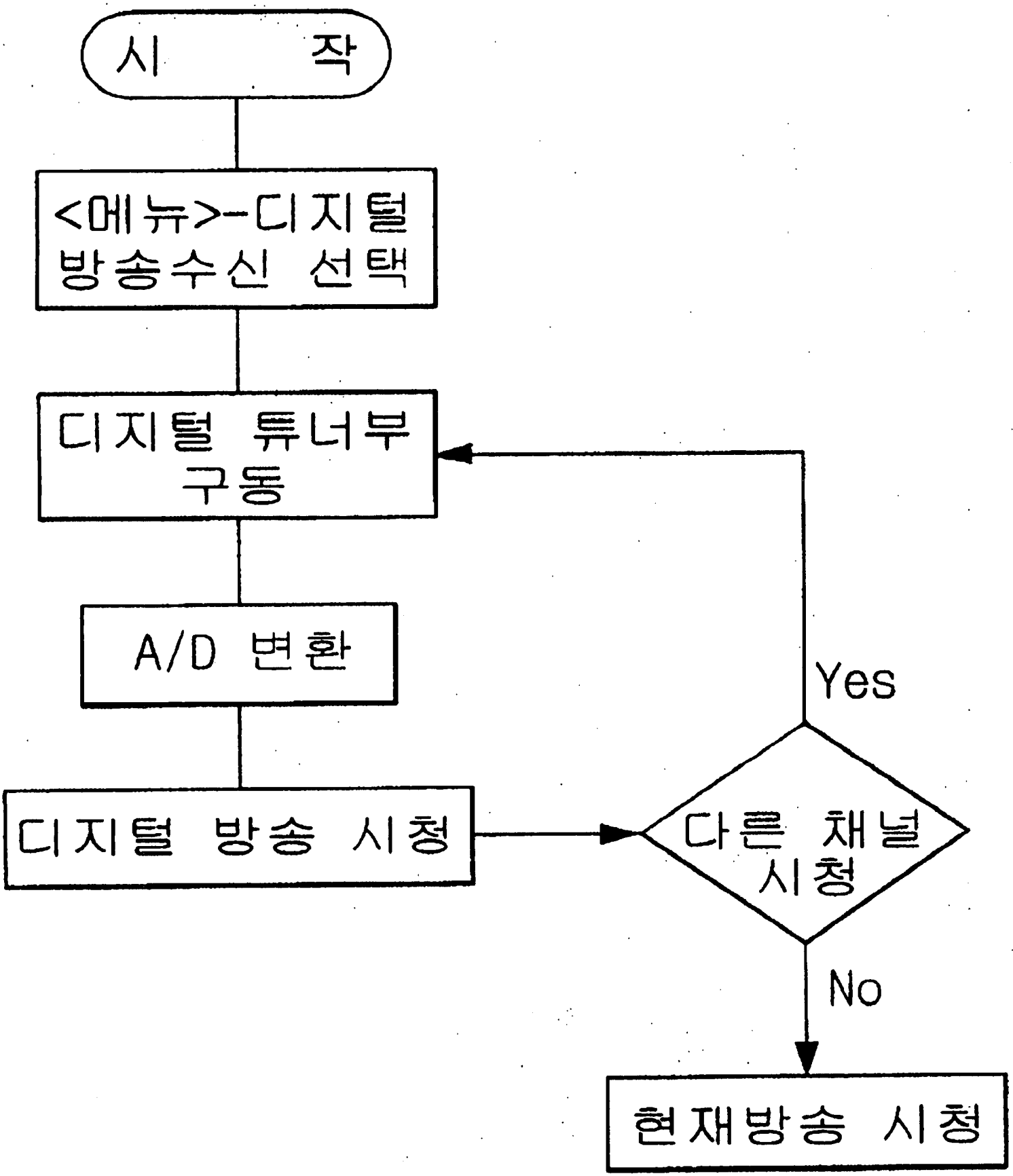


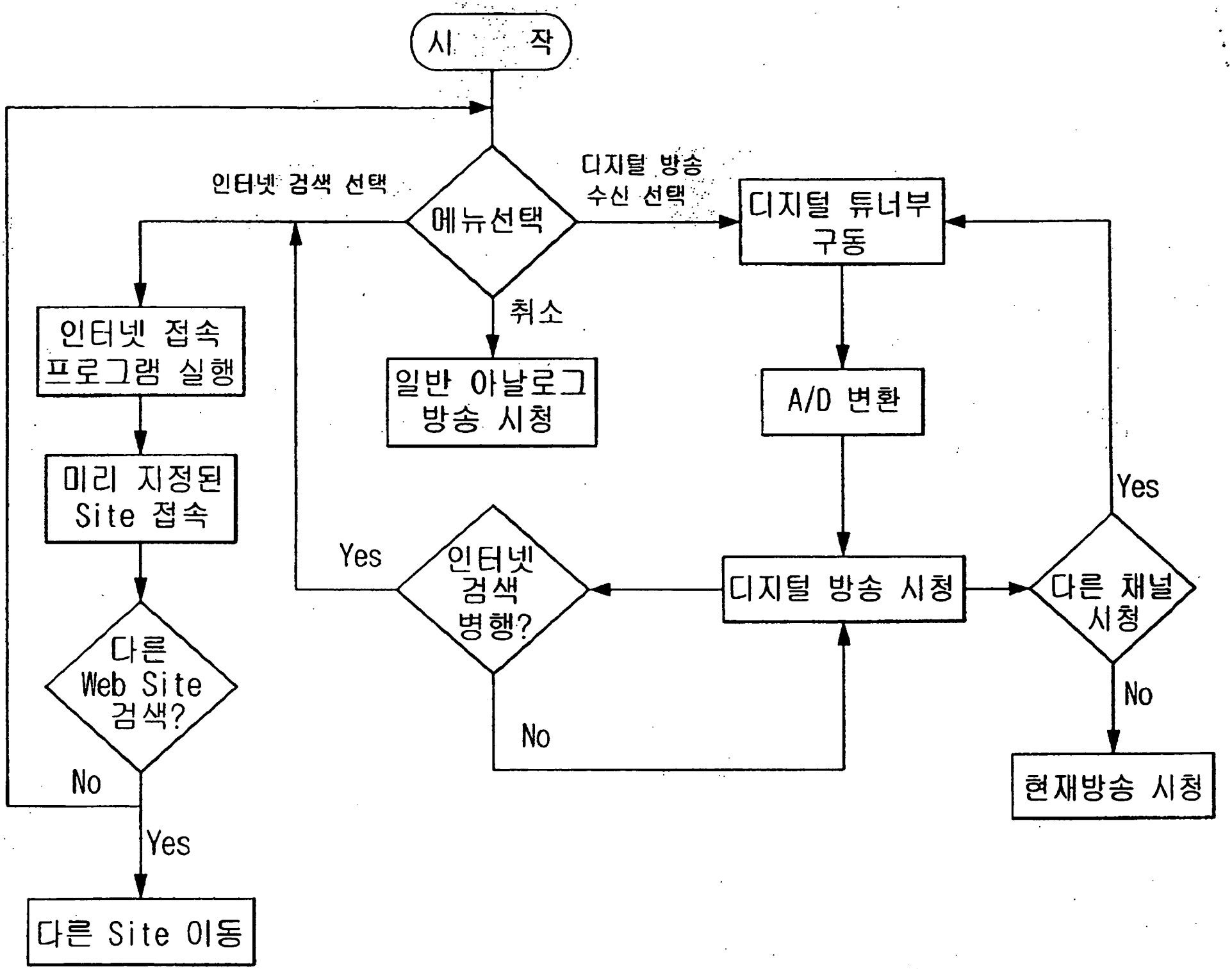

프로세서 장치부
10a
메모리 제어 장치부
40a
노스 브리지부
20a
60a
그래픽 카드부
70a
오디오 카드부
80a
랜 카드부
사우스 브리지부
25a
입출력 장치부
50a
주기억 장치부
30a


10b
프로세서 장치부
VIDEO
20b
AUDIO
통합 칩셋 장치부
50b
입출력 장치부


40
30
25
20
60
100
10
70
90
50
80


시 작
<메뉴>-인터넷 검색 선택
인터넷 접속 프로그램 실행
미리 지정된 Site 접속
다른 Web Site 검색
No
Yes
다른 Site 이동


시 작
<메뉴>-디지털 방송수신 선택
디지털 튜너부 구동
A/D 변환
디지털 방송 시청
다른 채널 시청
Yes
No
현재방송 시청


시 작
메뉴선택
인터넷 검색 선택
디지털 방송
수신 선택
취소
디지털 튜너부
구동
인터넷 접속
프로그램 실행
일반 아날로그
방송 시청
A/D 변환
미리 지정된
Site 접속
Yes
인터넷
검색
병행?
디지털 방송 시청
다른 채널
시청
다른
Web Site
검색?
No
No
Yes
No
현재방송 시청
Yes
다른 Site 이동